

>Y`Ybh_YnÅg A chj 1Wj g`Yj Å

A chj 1Wj g`Yj Å ! ? YnXÅg bÅa Yh

GY\ f' [Y\ fHY' < Yffž

dcfhi [½

DfYnUXc'GYb\cfž

7 Uf c'GYb\cfž

< j Uj cgž ZÅFZ] VĚa nYtž]ga YfYhYb`bÅj

GY\ f' [Y\ fHY' : fu ž

DfYnUXU'GYb\cfUž

7 UFU'GYb\cfUž

< j Uj cgž b] VĚa nYtž]ga YfYhYb`bÅj

GY\ f' [Y\ fHY' 8 La Yb`i bX` < YffYbž

DfYnUXcfU'GYb\cfFUž

7 Uf cfU'GYb\cfFUž

< j Uj cgž VĚa nYthbYj Y`Åg`bYa Y`]ga YfYhYb

GY\ f' [Y\ fHY' 8 La Yb`i bX` < YffYbž

DfYnUXcgjGYb\cfYgž

7 Uf cgjGYb\cfYgž

< j Uj cgž hÖW`VĚa nYth

GY\ f' [Y\ fHY' 8 La Yb`i bX` < YffYbž

5`ei Ya`dcggU`]bhYfYggUfž

< j Uj cgž VĚa nYthY`_bYj Y`Åg`bYa Y`hY`YgYb`]ga YfYhYb

GY\ f' [Y\ fHY' < Yff`GWa]Xhž

DfYnUXc`Gf`"G]j Už

7 Uf c`Gf`"G]j Už

< j Uj cgž ZÅFZ] VĚa nYtž]ga YfhibÅj

GY\ f' [Y\ fHY' : fu`GWa]Xhž

DfYnUXU`Gf`"G]j Už

7 UFU`Gf`"G]j Už

< j Uj cgž b] VĚa nYtž\`½Už]ga YfhibÅj

GY\ f' [Y\ fHY' : fu`GWa]Xhž

DfYnUXU`Gfh`"G]j Už

7 UFU`Gfh`"G]j Už

< j Uj cgž b] VĚa nYtžY[mYXØ`½`Ī`ž]ga YfhibÅj

GY\ f' [Y\ fHY' : fu`GWa]Xhž

DfYnUXU`Gf`"G]j Už

7 UFU`Gf`"G]j Už

< j Uj cgž b] VĚa nYtž]ga YfhibÅj ž]ga YfYhYb`WjU`½]`½`Udch

>Y Ybh_ YnĀg A chj 1Wj g`Yj Ā`



@jYVYf< Yff'GWa]Xlz

DfYnUXc'J Ērcf'G]j UĚ
7Ufc'J Ērcf'G]j UĚ

? Yj ĀgVĀ`j] Uu'cgža 1ēfĀ[YWV'Ī Huj Ub'Ān'YH' _UdVgc`Uh

<]Yfa]hVYk YfVY'jW'a]W' i a 'X]Y'GHY`Y'Ug'""žX]Y
G]Y'j b'""j ca '""U g] YgWf]YVYb`UWYb"

9i '[cg]Uf]U'XYWbX]XUUF!a Y'Uc'Wf[c'XY'""ei Y'Zc]
Ubi bV]UXc'Ya '#c'#U'""Ya '""

GHubXUF'Zcfa i `UY[mic`mub'½ ½g]UzLa Y'nbY_`U\]fXYHĀgĀhY[mĪg]½ Vubj U[mia U[Uh]bVub`½HUX

6Yni [bY\ a YbX'U Z=āY'5bnY][Y'U Z'""gWf]VY'jW
=bYb'""

9g]Yj c'Ya 'fYgdcg]U'Uc'UbÖbV]c'di V]W]Xc'Ya '#c'#U'""

GHubXUF'Zcfa i `UY[mcb`]bY`\]fXYHĪh'½ ½g]Uj ½Ugnc`½g_cf

6Yni [bY\ a YbX'U Z=āY'5bnY][Y'j b'""j ca '""

F Y]fcl'a Y'Uc'g]i 'UbÖbV]c'Ya '#c'#U'""XUUXc'XY'""

GHubXUF'Zcfa i `U'UbbU_`Ya U[mUf½g]Uz`c[m\c`'H'½HUX'Ua Y[\]fXYHĪh'½ ½gh

A]h[fc»Ya '#bYfYgg]'UWY'jW' =āY'5bnY][Y'Zc'X]Y
Dcg]h]cb`Y]bYg'YfZ\āYbYb'""j b'XYf'5i g] UWY'""j ca
""[Y'YgYb"

9i ``]c'g]i 'UbÖbV]c'g'VfY'i a fU'""Yi dYf]YbH'""bcfU'""
YX]Ā;c'XY'""žY'Yb\c'[fUbXY]bHfYgg]'bUj U[U'

GHubXUF'Zcfa i `UY[mic`mub'½ ½g]U'Y Ybh_ YnĀg_cfzLa Y'mYhY[mia U[Uh]bVubj U[m\YH'`UdVub`½H'½

5i ZXUbj cb`=bYb'U g] YgWf]YVYbY'GHY`YbUb[Vch
VYk YfVY'jW'a]W' [YfbYžk Y]""

J Yb\cždcf'a Y]c'XYgUzWbX]XUUF!a Y'½dcg]Ā;c
Ubi bV]UXUzWta c'""

GHubXUF'Zcfa i `U'½ ½g]Y Ybh_ YnĀg_cf

ΔW`VYk YfVY'a]W' i a 'X]Y'GHY`Y'Ug'""

9i '[cg]Uf]U'XYWbX]HUF!a Y'Uc'Wf[c'XY'""

GHubXUF'Zcfa i `U'½ ½g]Y Ybh_ YnĀg_cf

8YfnY]hUfVY]H'jW' Zc'""Ni 'a Y]bYb'5i Z] UWYb
nĀ\`Yb'""

5h' Ua YbH'fUWU\c'dUfU'""Y'gci 'fYgdcbg]½Y'dcf'""

Bm]Ī' a cbXUh_Ābh\Ugnb½½`U'Y'Yb'Y[]'Zc[`U_cn]g] ½Udch`Yf'½g]U

A chj 1Wj g`Yj Ā`!`¥fj YĀg

bĀa Yh

dcfh [½

8]Y'GHY`Y]ghZc'a]W'j cb'[fc»Ya '#bYfYgg]žk Y]""

9gci 'dUf]W`Ufa YbH']bHfYgg]Xc'bYgY'fUWU\c'#Wf[cž
Wta c'""

5bbU_`Ua Y[a U[nUf½g]Uz`c[mia]ĀfignYfYbĀX'Uh'UXctĪa i b_½

; YfbY`k ØFY`jW`ZØF`GjY`UFVY]hYbži a`''''

9i` [cg]UF]U`XY`fUMU`UF`dUFU`''''fbca`Y`XU`Ya`dfYgUžU`
Zja`XY`''''

5 bbU_`U`a`Y[a`U[mUF`1/2]1/2]Už`c[mia`]ÅfhgYfYfbÅX`Uh`UXcthia`i`b_`1/2

Ni` `a`Y]bYb`GrÅf`_Yb`nÅ`_Yb`''''

A`Yi` gdcbhcgZcfHYgg;c`''''

5` ``Y[ZcbhcgUW`h` `UXcbg]1/2 U]X` ``Yf`1/2U`_cf

⇒W`XYb`_Yžni` `a`Y]bYb`GWk` ÅWYb`nÅ`_Yb`''''5`VYf`
]W`UFVY]h`XUfUbža`]W`]b`X]YgYa` `6`YfY]W`#X]YgYb`
6`YfY]WYb`ni` `j`YfVYggYfb`''

9i` X]f]U`ei`Y`U`a`]b`U`Öb]W`ZfUei`YnU`Å#Ugja`]b`Ug`Öb]Wg`
ZfUei`YnUg;c`''''7`cbh`Xcz`Ygci` `hYbUbx`c`a`Y`cfUf`
bYgHYfj`UgdYMcfcj`''

I` hU`1/2U`[mYb[YgÅ[Y]XFYZ`XY`UbbU_`a`i` hU]1/2Už`c[mgnYfYfbÅ`YnY`_Yb`U`hYfØ`YhY`_Yb`ZY`^`Xb]

⇒W`Y][bY`a`]W`ZØF`X]YgY`Dcg]h]cbžk`Y]`''''

5`VYX]hc`ei`Y`gci` `]bX]WXC`dUFU`c`fUMU`c`dc]g`''''

5` bbU_` ``Yf`1/2]1/2]Už`c[mia`]h` `j`U[mi`Ā` `Y`Ybh_Yn` `U`a`i`b_`1/2U

Nk`Uf`_Ubb`]W`_`Y]bY`9fZUfi`b[`]b`''''j`cfk`Y]gYb`/
XUZØF`_`UW`_]W`''''

9a`VcfU`Yi` `b;c`hYb`UYI`dYf]45V]U`UbHYf]cf`Ya` `''''žYi` `h]j`Y`
''''

5`a`_]cf`a`Å[`bYa` `Xc`[cnf1/2`Uh`UXcthihYfØ`YhYbž`XY`gnYfYfbÅX`WYa`i`hU]b`]U`a`1/2]hYfØ`YhY`_Yb`gnYfnYthiUdUgnU`U]XU`h

A`Y]bY`VYfi`Z]WYb`E`i`U`Z]_U]cbYb`Yb]gdYWYb`XYb`
5`bZcfXYfi`b[Yb`⇒fYgI` bHYfbY`a`Ybg`''

A`]b`U`gei`U`]Z]WÅN]g`ÅWta`dYh45V]UgdfcZ]gg]cbU]g`
dUFYWVa`YgUf`XY`UWcfXc`Wta` `UgbYWVgg]XUXYgXU`g`U`
Ya`dfYgU`''

5` bbU_`U` ``Yf`1/2]1/2]Už`c[mia`]`mYb`_`ÅdYggÅ[Y`_`hYgnbY`_`U`_`U`a`Ugg]1/2U`a`i`b_`1/2U

K`Å`fYbX`a`Y]bYf`NY]hU`g`''''`_`UW`_]W`a`Y]bY`
?`Ybb]b]ggY`]b`''''j`YfVYggYfhi`#Yfk`Y]hYfhi`#j`Yfhi]YZH`

8i`fUbhY`a`Yi` `hYa`dc`Wta`c`''''žYi` `UdYfZY]ÅcY]`#UdfcZ]`bXY]`
#Yg]YbX]`#a`Yi` `Wtb`_`W]j`a`Ybhc`Ya` `''''

9[mUXcthihYfØ`YhYb`gnYfnYthiUdUgnU`Uh`VYa`i`hU]1/2U`Åg]U`_`ÅdYggÅ[`Ö`_`ÅdYggÅ[Y`_`#i`X]1/2]gnYfnÅgÅfY

A`Y]b`:`UW[YV]Yh]g]h`''''

A`]b`U`1/2]YUXY`YgdYW]U`]nU`Ä;c`Å`''''#Gci` `YgdYW]U`]nUXcfUk`
Ya` `''''

5` bbU_` ``Yf`1/2]1/2]Už`c[mia`]Y`n]_`hYfØ`YhYb`j`UbbU_`U`Y[bU[nCV`YfYXa` ÅbmY]Xž`hUdUgnU`U]X

K`Å`fYbX`a`Y]bYf`5`fVY]hVY]''''V]b`]W`]b`''''g`Yf`
gUW`_i`bX][`]Yk`cfXYb`''''

5`dYgUf`XY`fUMU`UF`Ya`#Wta` `''''žhcfbY]!`a`Y`
Yi`fY`Ya`Ua`YbHY`Wta`dYhYbhY`Ya` `''''

9[mUXcthihYfØ`YhYb`gnYfnYthiUdUgnU`Uh`VYa`i`hU]1/2U`Åg]U`_`ÅdYggÅ[`Ö`_`ÅdYggÅ[Y`_`#i`X]1/2]gnYfnÅgÅfY

5`i`W`]b`gYfYgg][Yb`G]h`U]cbYb`j`YfbUW`Ågg][Y`]W`
b]W]hGcf[ZU`hi`bX`;`YbU`][`]Y]h`8`U`Yf`k`ÅfY`]W`
VYgcbXYfg[Y][bYhZØF`X]Y`5`bZcfXYfi`b[Yb`U`g`''''

5]bXU`ei`Y`fUMU`UbXc`Ya` `f]ha`c`UW`YfUXczYi` `b;c`gci`
bY[`][YbhY`YfUMU`c`Wta` `dfY]g;c`žYbXcz`dcf`hUbcž`
UXYeI`UX`dUFU`UgXYa`UbXUgXc`fUMU`c`Wta`c`''''

5` bbU_`Y`a`U[mUF`1/2]1/2]Už`c[mia`]Åfh`YbbÅ`Ā`Ā` `Uh`1/2]1/2]U`_`cf]1/2W]`a`i`b_`U`hUdUgnU`U]X`U`Ud`1/2

A chj 1Wj g`Yj Å

5 i W i bhf'6Y Ugi b['V\UHY]W\c\Y
E i U]hÅggubXUFgVY]"

Gci 'WdUh'XY'a Ubhf' i a 'Uhc'dUXf'c'XY'fUMU\cz
a Yga c'gcV'dfYgg'c"

5 bbU_ÅfnÅ_YHhÅgÅfYz\c[m_ÅdYgj U[mia U[Ug][ÅbnY_YhH/a UgnH' _ÖfbmYnYH'Yb'Xc'[cnb]

Gca Jhk ØFY'g]W'ZØ'a]W'X]Y'; Y'Y[Yb\Y]h
Yf[YVYbž'a Y]bY' bhfYggYb'a]hX]YgYf'Dcg]h]cb'ni
j Yf_bØdZYb"

8YgU'Zcfa UYi 'hf]U'U'cdcfh b]XUXY'XY'WbV]U]f'cg
a Yi g]bhfYggYgW'a 'YgU'W'cWÅ'c"

5 bbU_`VYa i Hh]g]hÅz\c[mignYa Å'mYgYb']g'bU[mcb'ÅfXY_` Xgn'U'a i b_U]f'Yb

ÅW]bhfYgg]YfY'a]W' [Ubn'VYgcbXYfg'ZØ'X]YgY
GH`Y'i bX'k ØFY'a]W'g\af'ØYf'X]Y'; Y'Y[Yb\Y]h
ZfYi Ybž]b'XYf'Ni gJa a YbUfVY]ha]h=abYb'a Y]b
K]ggYb'ni 'Yfk Y]HfYb"

9i 'Hb\c'YgdW]U]bhfYgg]Y'a #bc'#U'''Y'[cg]Uf]U'hf' U
cdcfh b]XUXY#WUbw'XY'Ua d']Uf'a Yi gWb\W]a Ybhcgž
fUMU\UbXc'Ya #bc'#U'''fbca Y'XU'Ya dfYgU'c"

5 bbU_`VYa i Hh]g]hÅz\c[mignYa Å'mYgYb']g'bU[mcb'ÅfXY_` Xgn'U'a i b_U]f'Yb

K]Y'G]Y'a Y]bYa 'VY][YZØ] Hb'@VYbgU Z
YbHb\A Yb'_CbbYbž'YbHgd'fVWYb'a Y]bY'9fZUfi b[
i bX'a Y]bY'E i U]Z]_U]cbYb'XYb'5 bZcfXYfi b[Yb
X]YgYf'Dcg]h]cb"

7 ca c'dcXY'gf'cVgYfj UXc'bc'a Yi 'WffÉW'c'UbYi czU
a]b\U'Yi dYf]ÅV]U'Yei U]Z]WÅ'Ng'Wff'Ygdc'bXYa 'Ucg
fYei]g]hcgXYgU'dcg]Å'c"

5 n'CbÅ'YfU'ncX_] \Ub[gÖmcn]gU_cf'Åg'UbbU_ÅfnÅ_YHhÅgÅfYz\c[mia Ybbr]fY]'`YbY'\cmn]X'Yn'U'a i b_U

A Y]bY'XYfnY]h[Y'Dcg]h]cb'Ug''''V]YH'ha]f'X]Y
; Y'Y[Yb\Y]hž]b'Y]bYa 'Ubgdfi Wg' c`Yb'i a Z'X'ni
UfVY]Hbžk c'X]Y'Yb[Y'Ni gJa a YbUfVY]ha]ha Y]bYb
? c`Y[Yb'i bj Yfn]W'Uf]gž'i a j YfY]bUfH': f]gYb
Y]bni \U'Yb"

A]b\U'dcg]Å'c'Uhi U'W'a c'''XY'#Xc'#U'''za Y
dfcdcfV]cbci 'U'cdcfh b]XUXY'XY'fUMU\Uf'Ya 'i a
Ua V]Ybh'XY[fi dc'XY'U'U'dfYgg'cz'cbXY'Å'YggYbV]U'gYf'
WdUh'XY'fUMU\Uf'W'a 'W'Y[Ugž'U'Z]a 'XY'W'a df]f
dfU'ncg]"

5 bbU_`Yf]g]hÅz\c[mia]'mYb'hi X]g]gU'W'fch]Y'U'Y'Yb'Y[]'a i b_`X'gcf'Yb

Ni gÅn]W'ni 'a Y]bYb'J YfU'bk cfh]W'_Y]Hb'U'g''''
\U'Y]W'U'W': Å\[_Y]Hb']b''''Yfk cfVYb"

5`Åa 'XY'a]b\U'gfYgdc'bgU]]XUXYgW'a c''''Z'Yi 'H'a VÅa
XYgYbj c]]\U]]XUXYgW'a dYh'ÅV]U'gYa ''''

9i HfU_ÅdYgHÅgY_#i X]g]Yf]g]hÅz\c[]_YhU'Y'Yb'Y[]'½]g'Xcb'_YfYgn]g]g]g]hÅz\c[Ågž'Ua]_bYa 'Z'Y'hÅh'YbØ'ZØ[]bY_
ÖgnY'gncfcg]b'U'Zc[`U_cn]g]d'cnÉV]i XXU

A chj 1Wj g`Yj Å ! ? ÅdYggÅ[Y_#_ÅngÅ[Y_

bÅa Yh

dcfh [½

'''']g'ha Y]bY'A i HfYgdfUWY/XUfØYf'\]bU'g'gdfVWY
]W''''

A]b\U'df]a Y]fU'Éb[i UÅ''''za Ug]H'a VÅa 'Z]c''''

5 n'U'bm'ubm'Y'j YX'Åg'Uh'Y[nÅV'Zc' mÅ_c'bm'ub'VYgn'Å'hbm'Y'j Y_`Yf]g]hÅz\c[

>Y Ybh_ YnÅg A chj 1Wj g`Yj Å`



⇒W j YfZØ[Y'ØVf'g\^f[i hY? Ybbfb]ggY'j]b''''

9i 'ZJc''''Vta 'Zi ÅVMJU'
Gci 'Zi YbhY'Ya ''''

B Ya 'UbntubnY'j]žXY'a U[Uj'gn]bhYb 'VgnÅ'hibnY'j Y_`YÉf'gU

⇒W 'VYg]hmY'gc`]XY'; fi bX_Ybbfb]ggY'j]b''''

9i 'hYb\c'Vtb\W]a Ybhc']bhYfa YX]½]c'XY''''

B Ya 'UbntubnY'j]'Åg_`ÇnÅdgn]bhYb 'VgnÅ'hibnY'j Y_`YÉf'gU

⇒W j YfZØ[Y'ØVf''''''>^fY'9fZUafi b['Ug''''

9i 'hYb\c''''Ubcg'XY'Yi dYf]ÅVMJU'XY'fUWU'\c'Ya '#Vta c''''

9[mUXc]h]Øn'Yh] hYfØ'YhYb'gnYfnYh]h]UdUgnU'U'U]X`YÉf'gU]U

⇒W j YfZØ[Y'ØVf'[i hY? Ybbfb]ggY'j]b''''

9i 'hYb\c'Yi dYf]ÅVMJU'Ya '#Vta ''''

Gn½a Éh [ÅdYg'gncZj Yf']ga YfYhY_ 'Ya i hU'gU

⇒W 'XYb_YzXUgg]W'ØVf'X]Y[Y]Y[bYhY? ca V]bU]cb
U g''''i bX''''j YfZØ[Y'

9i 'UWYX]hc'hYf 'UWta V]bU]c'UXYeI UXUXY''''Y''''''

5 bbU_`YÉf'gU]U]Z'\c[mia Ybbm]fY_]Y[nYbgÖnenc]hU_ 'U_ÅdYggÅ[Y]X

U g] YnY]WbYhY? ca a i b]_U]cbgZÅ][_Y]hYb

9i W'YbhY\UW]]XUXY'XYVta i b]W]c

⇒bZcfa ½] _'a Y[cgn]h]U'ÅgV]ncbncg'Xc'[c_ 'Ya U[nUf'½]gU'U_ c`Å[½]bU_

gW'i ggZc`[YfbXYg'8 Yb_Yb

F U]cV]b]c'XYXi h]j c

6]ncbncg'Xc'[c_ 'a Y[ÅfhÅg'Åg[ncf'g'Åg\UhÅ_cbmY'a U[nUf'½]gU

`c[]gWYg'8 Yb_Yb

DYbg]a Ybhc`Í []Wt

5 n'Y_ÅdnY'ÅgY_#ÇhYhY_`dfV]h]Åg'Í`½] cbXc'hia Í Xcb]j U'Í'gnYf_YgnhÅgYz'ÇgnYfU_½]gU

UbU'nt]gWY: Å\[_Y]hYb

< UW]]XUXYg'UbU'Éh]Wg

? ÅngÅ['UXc'[c_ fÅgn'YhYg'ÅfhÅ_Y'ÅgÅfY

\c\Y'gcn]UY? ca dYhYbn

6ca 'fY U]cb]a Ybhc']bhYf'dYggcU

5_ c`Å[½_U'j U'Í '\UhÅ_cbmY[mØha _ØÅg'Åg'_ca a i b]_½] fUj U'Í_ÅngÅ[

J Yf\UbX'i b[g] YgW]W

< UW]]XUXYg'XY'bY[c]U]c

A ½]j ½_U'hc_ U'j U'Í '\UhÅ_cbm]Øn'YhY'Åg]'_ÅngÅ[

DfÅgYb]h]cbgZÅ][_Y]hYb

< UW]]XUXYg'XY'Vta i b]W]c

5_ÅngÅ[z'\c[migc_ 'Ya VYf'Y' h]i_ÅdYg'\UhÅ_cbn]ub'Y' UXb]'Uh'ÇhYhY]h

A chj 1Wj g`Yj Å`! @Yn½]g

bÅa Yh

dcfhi [½

A chj 1/2 g`Yj Å`

⇒W`V]b`cW`a chj jYfhi bX`ZfYi`Y`a jW`U`Z`X]Y
j jY`gY]h[Y`HÄH[_Y]h`X]Y`a [f`Y]bY`Dcg]h]cb`]b`⇒fYa
l bhYfbY`a Yb`V]YhYb`k`ØFY"

9gci`a`i`]hc`a`chj`UXc`Y`Ubg]c`dY`c`f`UMU`c`
X]j`Yf`g]Z]W]Xc`ei`Yi`a`W]f`[`c`b`Yg]U`Ya`df`Yg]U`df`cdcf]V]cbU`

@Yn1/2g]1/2`a`Y`[`]ga`ÄH`j`Y`Z`c`[`mia`Ybbr]fY`gnYfYb`Å`Uj`1/2`U`U`b`U`_`Xc`[`cnb]`

⇒W`g`Y`X]Y`bYi`Yb`5`i`Z`U`Yb`#`X]YgY`Dcg]h]cb`U`g
k`j`_`ca`a`YbY`<`YfU`g`Zc`X`Yfi`b`[`Z`U`Z`X]Y`]W`a`jW`
ZfYi`Y`

9i`j`Y`c`U`g]bcj`U`g]U`f]V]i`]Ä`N]g`#`Y`g]U`d`cg]Ä`c`W`a`c`i`a`
Yi`W`YbH`X`Y`g]Z]c`"

@Yn1/2g]1/2`a`Y`[`]ga`ÄH`j`Y`Z`c`[`mia`Ybbr]fY`gnYfYb`Å`Uj`1/2`U`U`b`U`_`Xc`[`cnb]`

⇒W`k`ØFY`a`jW`g`Y`f`Ø`Yf`X]Y`Y`Y`Y`Yb`Y]h`ZfYi`Yb`ž
k`Y]hYfY`8`Y]U]`g]ni`X`Yf`Dcg]h]cb`a`]h`⇒`b`Yb`
dYfg`Öb`]W`ni`V`Y`g`d`f`W`Yb`"

9i`[`cg]U`f]U`X`Y`h`Yf`U`cdcf`h`b]X`U`X`Y`X]Y`X]g]M]h]f`a`U]g
X`Y`U`Y`g]g`c`V`f`Y`U`j`U`[`U`d`Y`gg`c`U`a`Yb`H`"

@Yn1/2g]1/2`Z`j`j`_`U`b`h`b`]`Y`[`m`Y`Y`h`g]Ä`Y`g]b`h`Yf`Ö`h`

5`b`V]Y`Y`f`U`h`Yb`G]Y`a`Y]b`Yb`@`W`Y`bg`U`Z`

A`Yi`W`f`f`Ä`W`c`Yb`W`b`h`U`g]Y`U`b`Yi`c`d`U`f`U`g`U`U`d`f`W]U`Ä`c`"

G]h`b`X`U`f`X`Z`c`f`a`i`_`U`U`b`b`U`_`Y`f`f`g]Ä`U`Z`c`[`mi`U`7`j`U`V`g]U`c`a`1/2`m`U`b`j`U`b`

5`i`Z`K`i`b`g]W`g`Yb`X]Y`]W`⇒`b`Yb`[`Y`fb`Y`X]Y`N`Yi`[`b]`ggY`
j`cb`""`ni`"

9i`d`c`gg`c`Z`c`f`b`W`f`f`Y`Z`f`Ä`V]U`g]g]Y`b`Y`W`gg]Ä`c`"

G]h`b`X`U`f`X`Z`c`f`a`i`_`U`U`f`f`U`Z`c`[`mi`b`r]h`c`h`j`U`[`mi`f`Y`Z`f`Y`b`W]1/2`U`X`1/2`g]Ä`U`

N`Yi`[`b]`ggY`_`Ö`b`Yb`V`Y`""`U`b`[`Y`Z`c`f`Y`f`h`k`Y`f`X`Yb`"

F`Y`Z`f`Ä`V]U`g]d`c`X`Y`a`g]Y`f`g`c`]M]H`U`g]1/4`U`c`""`

5`bb`U`_`Y`f`f`g]Ä`U`Z`c`[`mi`h`X`g`n`c`n`b`]f`Y`Z`f`Y`b`W]1/2`h`Ä`g]Z`c`[`mi`_`h`_`Y`f`Y`gg]Y`b`Y`_`Ä`f`Y`

:`Ø`f`Y]b`j`c`f`g]Y`i`b`[`g]`Y`g`d`f`Ä`W`g`h`Y`Y`]W`U`a`""`ni`f`
j`Y`f`Z`Ö`i`b`[`"

9gci`X]g]d`c`b`É`Y`d`U`f`U`Y`b`h`f`Y`j`g]U`Y`a`""`

5`bb`U`_`U`h`X`c`a`1/2`g]`_`U`X`1/2`g]Ä`U`Z`c`[`mi`g]n`U`U`X`j`U`[`mi`Y`[`mi]b`h`Yf`Ö`f`U`

J`j`Y`Yb`8`U`b`_`Z`Ø`f`⇒`f`⇒`bhYfYggY`⇒`W`k`ØFY`a`jW`g`Y`f`
Ø`Yf`X]Y`Y`Y`Y`Yb`Y]h`ZfYi`Yb`ž`G]Y`]b`Y]b`Ya`
dYfg`Öb`]W`Yb`Y`Y`g`d`f`Ä`W`X`U`j`cb`ni`Ø`Y`f`n`Yi`[`Yb`ž`X`U`gg`
]W`X`Y`f`[`Y`Y]`[`b`Y`H`?`U`b`X]X`U`h`Z`Ø`X]Y`g`Y`Dcg]h]cb`V]b`"
6]h`Y`_`cb`h`U`h`Y`f`Y`b`G]Y`a`jW`d`Y`f`""`

C`V`f]`[`U`X`c`d`c`f`g]Y`i`h`Y`a`d`c`Y`W`b`g]X`Y`f`U`Ä`c`"5`[`i`U`f`X`c`U`
c`d`c`f`h`b]X`U`X`Y`X]Y`X]g]M]h]f`d`Y`gg`c`U`a`Yb`H`Y`g]f`U`h`N]Y`g`d`Y`U`g`
ei`U]g]g]c`i`U`d`f`c`d`f]U`X`c`d`U`f`U`Y`g]U`d`c`g]Ä`c`"D`c`f`Z`U`j`c`f`Y`b`h`f`Y`
Y`a`W`b`h`U`h`c`W`a`][`c`j`]U`""`

5`d`f`Y`Z`f`f`h`Y`Ä`f`Y`h`g]Ä`[`Y`_`a`Y`[`U`X`1/2`g]1/2`Ä`g]U`Y`Y`b`h`_`Y`n`Ä`g]1/2`b`Ä`n`Ä`g]Ä`f`h`i`a`Y`[`_`Ö`g]n`Ö`b`Ä`g]Y`_`c`f`_`U`g]n`b`1/2`U`h`c`g`

A`]h`ZfYi`bX`]W`Yb`Y`Y`f`Ø`Yb`

7`c`f`X]U`a`Y`b`h`Z`

<`j`U`U`c`g]Z`V]Ä`n`Y`h`b`Y`j`Y`]ga`Y`f`Y`h`Y`b`

>Y`Ybh_YnÅg
A ch]j 1W]i g`Yj Å`



A]hZFYi bX`]WYb; fØ»Yb
<]j Uu]cgžgnÅ`Yg_ÖfVYb`Ugnb½žž]ga YfhVĚā nYth

5hVbV]cgJa YbHŽ

<cWUWHi b[g c``
<]j Uu]cgžbYa `kÖ`Y`hYf`YXhž]ga YfhVĚā nYth

7ca `Y`j UXU`Yg]a UŽ

< Yfn`]WY; fØ»Y
BYa `]j Uu]cgžØn`Yh`dUfhbYfY_`_ÖnÖhžU_]`hY[Yn XbY_

@Ya VfUbÄUgž